

1. (Currently Amended) A ~~E~~colloidal dispersion of calcium phosphate platelets comprising ~~at least one polymer which complexes calcium and in which calcium phosphate platelets, wherein~~ the length of the platelets, L, is between 5 and 500 nm and ~~in which~~ the thickness of the platelets is between 0.5 and 20 nm, ~~and at least one polymer which complexes calcium.~~

2. (Currently Amended) The ~~E~~colloidal dispersion according to claim 1, ~~characterized in that~~ wherein the length of the platelets, L, is between 5 and 300 nm, ~~preferably between 5 and 200 nm.~~

3. (Currently Amended) The ~~E~~colloidal dispersion according to claim 2, ~~either of the preceding claims, characterized in that~~ wherein the thickness of the platelets is between 0.5 and 15 nm.

4. (Currently Amended) The ~~E~~colloidal dispersion according to claim 1, ~~one of the preceding claims, characterized in that it comprises~~ wherein the calcium phosphate platelets exhibiting one of a monetite or apatite structure.

5. (Currently Amended) The ~~E~~colloidal dispersion according to claim 1, ~~one of the preceding claims, characterized in that it comprises~~ wherein the at least one polymer which complexes calcium ~~having comprises at least one of a anionic functional groups, preferably carboxylate, phosphate or phosphonate anionic functional groups.~~

6. (Currently Amended) The ~~E~~colloidal dispersion according to claim 1, wherein the one of the preceding claims, characterized in that it comprises at least one polymer which complexes calcium ~~chosen from is selected from the group consisting of~~ polymers with a peptide backbone of polyaspartic acid, polyglutamic acid, polylysine or polyglycine type, ~~or else from~~ homopolymers and copolymers of acrylic acid, ~~or~~ methacrylic acid, polyacrylic acid or polymethacrylic acid, ~~or else from~~ copolymers of the polyacrylic-polymethacrylic, polyacrylic-polyhydroxyethylacrylic or polyacrylic-polyacrylamide type, ~~or else from natural and/or modified~~ polysaccharide polymers, ~~such as~~ guar gum, carboxymethylcellulose or xanthan gum, ~~or else from~~ modified polysaccharide polymers having phosphate or phosphonate functional groups, ~~or else from and~~ peptide polymers comprising phosphate functional groups.

7. (Currently Amended) The ~~E~~colloidal dispersion according to claim 5, wherein the one of the preceding claims, characterized in that it exhibits a molar ratio R<sub>4</sub>, moles of anionic

functional groups present in the polymer to moles of calcium in the dispersion is, of between 0.0001 and 0.1.

8. (Currently Amended) The Colloidal dispersion according to claim 1, wherein the one of the preceding claims, characterized in that it comprises at least one polymer which complexes calcium having has a molecular weight, MW, of between 1000 and 20, 000 g/mol, preferably of between 1000 and 5000 g/mol.

9. (Currently Amended) The Colloidal dispersion according to claim 1, wherein the colloidal dispersion further comprises one of the preceding claims, characterized in that it comprises at least one dispersing agent.

10. (currently amended) The Colloidal dispersion according to claim 9, characterized in that it comprises wherein the at least one dispersing agent chosen from is a polyphosphates, in particular sodium tripolyphosphate.

11. (Currently Amended) The Colloidal dispersion according to claim 9, wherein the either of claims 9 and 10, characterized in that the dispersion exhibits a molar ratio  $R_2$ , moles of dispersing agent to moles of calcium, of is between 0.001 and 0.5, preferably of between 0.001 and 0.1.

12. (Currently Amended) The Colloidal dispersion according to claim 1, wherein the dispersion further comprises one of the preceding claims, characterized in that it comprises doping elements chosen from selected from the group consisting of alkaline earth metal elements, such as strontium or magnesium, rare earth metal elements, such as yttrium, or and elements with an atomic number of between 57 and 71.

13. (Currently Amended) Calcium phosphate platelets obtained by drying the colloidal dispersion of claim 1, according to claims 1 to 12.

14. (Currently Amended) Process A method for preparing the dispersions of calcium phosphate platelets, wherein the length of the platelets, L, is between 5 and 500 nm and the thickness of the platelets is between 0.5 and 20 nm, and at least one polymer which complexes calcium comprising the steps of: according to claims 1 to 12, characterized in that it comprises the following stages:

- i) preparing a solution of calcium salts, and adjusting the pH of which is to a selected value of between 4 and 6;

- ii) adding a phosphate solution to the solution obtained in stage step i) over a period of time of between 30 minutes and 4 hours, so as to obtain a calcium to phosphorus molar ratio of between 1 and 2.5, wherein and while keeping the pH is maintained constant at a the selected value of between 4 and 6 until a calcium phosphate platelet dispersion is formed;
- iii) heat treating the dispersion obtained in stage step ii) at a temperature of between 50°C and 95°C;
- iv) washing the dispersion obtained in stage step iii);
- v) adding a dispersion agent to the dispersion obtained in stage step iv);
- vi) separating the colloidal dispersion obtained in stage step v);

and in that it uses, wherein in at least one of stages steps i) or ii), the solutions comprising an further comprise ammonium ions; and in that wherein at least one polymer which complexes calcium is added during stage step i) or ii) but before stage iii).

15. (Currently Amended) Process The method according to claim 14, characterized in that wherein the calcium solution is a  $\text{CaCl}_2$  or  $\text{Ca}(\text{NO}_3)_2$  solution.

16. (Currently Amended) Process The method according to either of claims 14 and 15, characterized in that claim 14, wherein the concentration of the calcium solution is between 0.25M and 2.5M, preferably between 1.25M and 1.75 M.

17. (Currently Amended) Process The method according to one of claims 14 to 16, characterized in that claim 14, wherein the phosphate salt solution is a solution of one of ammonium phosphate or of sodium phosphate, in particular of  $(\text{NH}_4)_2(\text{HPO}_4)$  or  $(\text{NH}_4)(\text{H}_2\text{PO}_4)$ .

18. (Currently Amended) Process The method according to one of claims 14 to 17, characterized in that claim 14, wherein the calcium to phosphorus molar ratio in the solution of step ii is between 1.3 and 1.7 and more particularly is 1.66.

19. (Currently Amended) Process The method according to one of claims 14 to 18, characterized in that claim 14, wherein the temperature of the heat treatment in stage step iii) is between 50°C and 95°C, preferably between 60°C and 90°C.

20. (Cancelled)